Installation MANUAL

PACBRAKE®

C40078

INLINE MOUNT PRXB™ EXHAUST BRAKES

APPLICATIONS:

2007½ - 2008 GM Duramax Diesel - 2500 And 3500 Models **LMM ONLY**

NOTE: **The C40078 kit is designed for vehicles with factory DPF (Diesel Particulate Filter). This kit is not recommended or endorsed by Pacbrake for the use in vehicle's that have had the DPF removed or bypassed. The Pacbrake system monitors the DPF status, removal or modification of the DPF may have adverse effects on the Pacbrake operation.**

Before Starting

Please check the engine and alternator RPO codes to ensure you have the correct exhaust brake kit for the vehicle. The RPO codes are listed in the glove box of the vehicle, please check them against the chart below before proceeding with the installation. If your vehicles RPO code is not listed on the chart please contact Pacbrake factory @ 1-800-663-0096.

Years Mfg	Engine RPO Code (found in the glove box)	Alternate RPO Code	Pacbrake Kit Number	Kit Description
2007 ½ - 2008	LMM	KW1 (single)	C40078	Automatic Transmission **without** optional 2nd alternator
2007 ½ - 2008	LMM	K76 (dual)	C40078*	Automatic Transmission **with** optional 2nd alternator

***NOTE:* K76 Dual Alternator trucks will need to find an alternate compressor mounting location as the optional 2nd alternator uses the Pacbrake compressor mounting location.**

LMM/KW1/K76 Designation can be found on RPO code list in glove box

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1 Getting Started

Thank you and congratulations on your purchase of a Pacbrake exhaust retarder. Before starting, check that your kit contains everything shown in the photo below.

C40078 Kit Layout

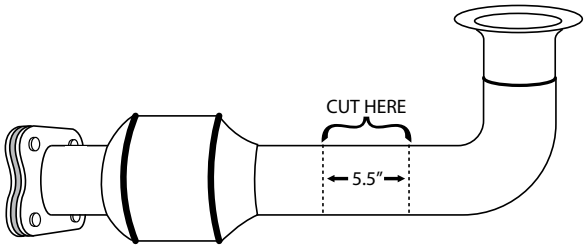
Exhaust Brake Installation

2

NOTE: It is **manditory** *to disconnect both negative battery terminals prior to starting the installation.*

Confirm the vehicle has a factory exhaust header pipe. The factory header pipe is a double wall design to retain heat within the exhaust system to aid in cleaning the DPF.

Note: Check the alignment of the header pipe flange to the turbo outlet pipe, adjust if necessary. The connection must be leak free and aligned correctly before the exhaust is cut and the adaptors are welded in. Leaks at this connection will affect exhaust brake performance.

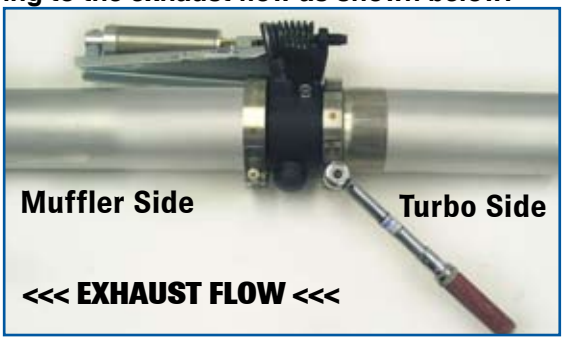


A 5.5" section of exhaust pipe will need to be removed to facilitate the exhaust brake and adaptors. A straight section of exhaust pipe is available in front of the catalytic converter to install the Pacbrake, mark the pipe as shown in the drawing. This is the **ONLY** location the exhaust brake may be installed. The section between the two marks needs to be removed to accommodate the exhaust brake. The exhaust adaptors provided are designed to fit between the inner and the outer exhaust pipes. Install the adaptors on the exhaust pipes and install the Pacbrake with the V clamps provided. Be careful to maintain the proper length, any angle that may exist and sufficient clearance around the exhaust brake. Position the regulator spring and air cylinder behind the frame rail so it is protected from debris. Tack weld the adaptors to the exhaust system, then remove both ends of the exhaust for final welding. Both Pacbrake exhaust adaptors need to be welded on the inside and the outside to maintain the dead air space between the inner and outer exhaust pipes. Clean both gasket surfaces of the 4 bolt flange.

3

Loosely install the exhaust system using the new gasket for the 4 bolt flange provided and exhaust brake. It is important to torque the header pipe to the turbo outlet pipe first to 10lbs-ft (13N °m). Then torque the Pacbrake pressure side V clamp to 10lbs-ft (13N °m), then the rear Pacbrake V clamp to 10lbs-ft (13N °m) and then the nuts securing the 4 bolt flange.

IMPORTANT: The exhaust brake provided is directional, it must be installed according to the exhaust flow as shown below:



4 Install the remote breather hose onto the barbed fitting of the Pacbrake air cylinder. Secure it to the barbed fitting with one of the tie-straps provided.
Route the other end of the hose to the engine compartment, it will be connected to the air compressor filter in step 9.
Install the 90° fitting into the air cylinder pointing it towards the front of the vehicle, use thread sealant on the fitting.

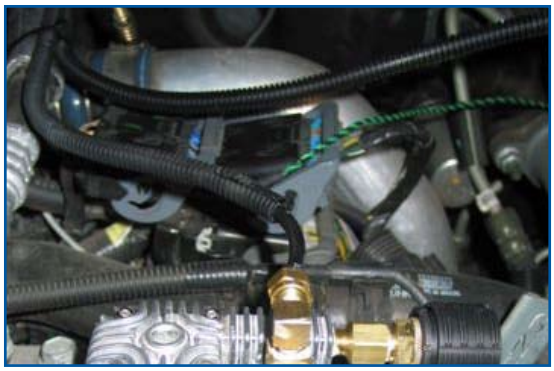
5 At the front driver's side battery open the box and connect the red wire with 30 amp fuse to the terminal of the battery stud. Use the supplied nut, lock and flat washer on top of the existing nut.

6 Compressor Installation

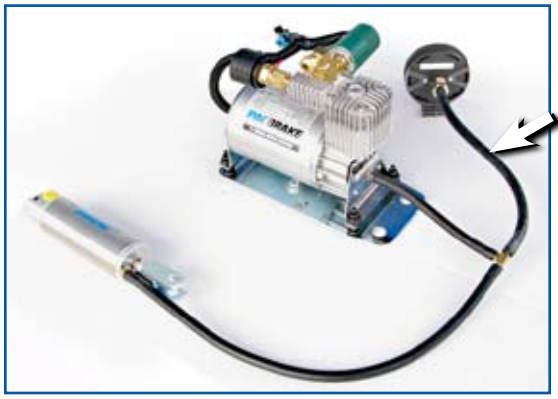
Loosely install the two metric capscrews and washers supplied through the bracket, loosely install the capscrew, lock & flat washer throught the compressor support bracket to the factory rivnut, located below the compressor.

7 Tighten all the capscrews evenly including the ¼" nut and bolt under the compressor. Connect the metri-pac connector with the red and blue wires to the mating connector of the compressor. Route these wires along with the red wire from the battery, through the fire wall, to be connected to the controller in step 16.

8 Install the 14’ nylon air line supplied into the compression fitting at the compressor, route it with the solenoid wiring (purple and black harness with metri-pac connector) to the passengers side of the frame. (air tank location - installed in step 13).



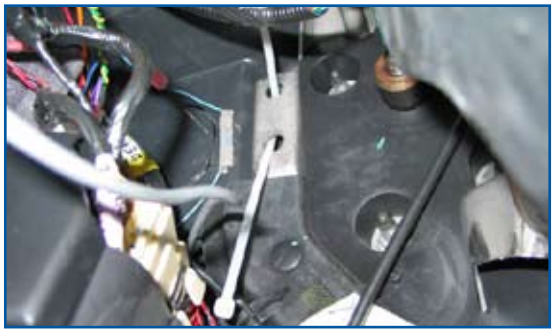
9 Locate the air cylinder breather hose in the engine compartment installed in step 4. This hose connects to the air compressor inlet filter with the “T” fitting provided. Connect the filter, the air compressor intake and the cylinder breather hose as shown. The filter housing is installed into the hole below the radiator in the support bracket. Mounting the air intake filter infront of the radiator will ensure the coolest air possible is supplied to the compressor



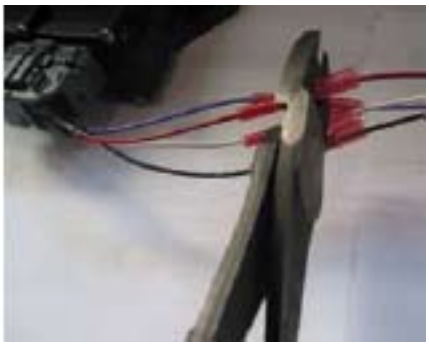
10 Installing The Pacbrake Harness

Locate the diagnostic connector under the dash on the drivers side. Connect the male plug of the Pacbrake harness, containing the twisted green and yellow wire pair, to the factory diagnostic connector. Secure the two connectors with a tie-strap.

11 Secure the Pacbrake control unit to the firewall. Locate the two holes in the firewall bracket shown in the photo, thread a tie-strap through the two holes to secure the control unit to the firewall. Secure the wires with the tie-straps provided.



12 Locate the Pacbrake LED switch with the twisted white/red/black/purple wiring. Crimp the red switch wire to harness plug red wire (Pin 22) of the controller harness, purple switch wire to harness plug purple wire (Pin 14) of the controller harness, black switch wire to harness plug black wire (Pin 2) of the controller harness, and white switch wire to harness plug white wire (Pin 1) of the controller harness. Once crimped, heat the connector to provide a water tight seal.



13 Install the fittings supplied into the top of the air tank as shown. Install the ¼" plug in the bottom or a drain valve if desired. Use thread sealant on all fittings.

14 Drill two 5/16" holes in the frame on 3 ¼" centers to mount the tank on the outside of the frame.

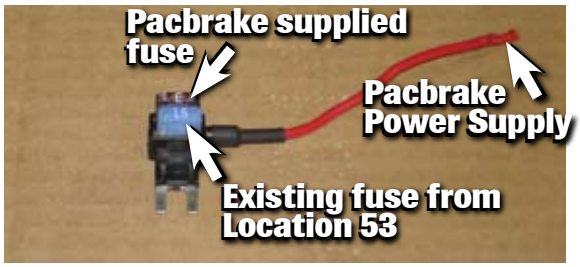
15 Install the two fittings provided into the solenoid using thread sealant.The solenoid valve mounts on the inside of the frame using one of the two air tank fasteners. Drill a ¼" hole to secure the other hole in the solenoid mounting flange, secure with the fastener supplied. Note: the solenoid exhaust port must point down as shown.Connect the solenoid port marked IN to the air tank using the remaining piece of nylon air line provided. Connect the solenoid port marked CYL to the air cylinder using the remaining piece of nylon line provided.

15 Cont… Connect the metri-pac connector of the solenoid, to the mating connector with orange and black 20 AWG wires of the Pacbrake harness. Route these wires along the frame to the driver side firewall and then into the cab. Secure the wiring harness and nylon air line away from heat sources and moving items with the tie-straps provided.

16 Connect either one of the two 14 AWG red wires originating at the small plug of the Pacbrake controller to the 30 amp fused 14 AWG red wire. Connect the 14 AWG red wire originating at the compressor to the remaining 14 AWG red wire of the small plug of the controller. Connect the remaining 14 AGW to the red wire from the compressor. Connect the three 20 AWG wires to the corresponding colored wires at the grey connector of the controller, blue (to pin 18), black (to pin 23) and orange (to pin13).

17 Route the 67” long red 20 AWG wire, (connected to Pin 21 in the grey harness plug), through the firewall to the main fuse box of the vehicle. Crimp the 20 AWG red wire to the wire attached to the fuse tap. The 3 amp fuse is inserted into the top slot of the fuse tap. Remove the lid of the fuse box by pushing in the plastic tabs that are located on the side facing the engine. Locate the 15 amp fuse in location 53 (ECM-IGN). This 15 amp fuse is then removed and inserted into the fuse tap below the 3 amp fuse supplied in the Pacbrake kit.

Once crimped, heat the connector to provide a water tight seal.
Insert the fuse tap into the fuse panel where the 15 amp fuse was removed Re-install the fuse cover.



18 Pacbrake control switch location can vary depending on customer preference and the availablity of space. A suggested location is on the left hand side of the dash panel.

19 Connect the battery terminals disconnected in step 2.

Check Operation

With the Pacbrake switch in the OFF position, start the engine and allow to idle. The Pacbrake compressor should pump air for approx. 2 minutes (this will fill the air tank from empty). Once the Pacbrake control unit confirms the air tank has reached maximum pressure the control unit will perform a “Self Test Cycle” which activates the exhaust brake 3 times with the vehicle stationary. After the “Self Test Cycle” is complete the exhaust brake will not activate with the vehicle stationary even with the exhaust brake switch in the ON position.

LED Switch Operation

With the vehicle’s ignition ON, and the switch in the ON position, the switch will turn red then momentary green illumination for initialization. The LED switch will then change back to a constant red illumination.

LED Switch Operation

- **RED** - Brake enabled and ready for activation
- **ORANGE** - Brake currently active
- **GREEN** - Diesel Particulate Filter (DPF) Regeneration is active, and the exhaust brake is disabled until DPF Regeneration is complete
- **NO ILLUMINATION** - Brake disabled/OFF

Road testing with an Allison 1000 series transmission

Test drive the vehicle with the Tow/Haul switched ON and the Pacbrake switch ON. Tow/Haul mode must be engaged when using the exhaust brake. Activating the Pacbrake several times will send a message to the Allison ECU to engage lock up and downshift the transmission to enhance exhaust braking. The first few times the exhaust brake activates it may not be very impressive but once the Allison ECU learns an exhaust brake is being activated, the ECU will apply lockup quicker and generate greater retarding. Downshifting will occur when the exhaust brake is activated as this is a normal feature of the Allison transmission. Customers may experience a very strong 2nd to 1st gear downshift. Over time the Allison ECU will compensate for it. The exhaust brake will turn off below 15 to 18 MPH or 25 to 30 km/h.

19 Cont…

Functional Parameter:

Brake Will Turn ON	Brake Will Turn OFF	Tow/Haul State
22 MPH (35 KMH)	19 MPH (30 KMH)	ON
50 MPH (80 KMH)	47 MPH (75 KMH)	OFF

Important Information Regarding DPF Regeneration

Your vehicle is equipped with a (DPF) Diesel Particulate Filter for emissions purposes. You should become familiar with the "Diesel Particulate Filter" section of your Duramax Diesel LMM user manual. The engine ECU will command a DPF self cleaning process approximately once per tank of fuel. During the DPF cleaning process, your Pacbrake will not operate in order to ensure that it doesn't interfere with the factory designed emission system on your vehicle. The Pacbrake enable switch has an L.E.D. indicator which will turn green to alert you that you are in the DPF cleaning process and that the exhaust brake will not function. Once the DPF cleaning process is complete the L.E.D. will change back to red indicating the exhaust brake is ready to function. The DPF cleaning process will take about 20 minutes at speeds above 30 mph (50 km/h). To ensure you minimize the time your exhaust brake is automatically disabled by the DPF cleaning process, if at all possible it is recommended you travel at a constant highway speed for about 20 minutes once the DPF cleaning process has started, as notified with the green L.E.D. in the Pacbrake enable switch. When the DPF cleaning process is complete, the L.E.D. on the Pacbrake enable switch will change back to red when in the ON position, your exhaust brake will seamlessly begin to function again.

Important Information Regarding Other Aftermarket Products:

Unfortunately Pacbrake cannot guarantee that, with the multitude of other aftermarket products on the market, your Pacbrake will not influence, or be influenced, by the use of other aftermarket products, most notibly those that interface with the truck's communication system. In some cases, due to the nature of the devices, incompatibility is not reasonably avoidable, and for this reason, Pacbrake recommends that this exhaust brake system be used on an otherwise factory stock vehicle

IMPORTANT NOTE: Disconnecting OBD II Plug for SERVICE WORK

If your vehicle requires service work, make sure the Pacbrake connector is disconnected from the OBD II plug from underneath the dashboard on the driver's side. Failure to do so could result in adverse effects to your exhaust brake and engine.

Wiring Schematic